

LOW RESOLUTION CORING PROGRAM NARRATIVE

The following information summarizes the collected samples and requested analyses for the Lower Passaic River Restoration Project Low Resolution Coring Program. This sediment coring program is also described in Section 5.0 of Field Sampling Plan (FSP) Volume 1 (Malcolm Pirnie, Inc., January 2006).

SUMMARY OF LOW RESOLUTION CORING PROCESS

To meet the data needs and objectives described in FSP Volume 1, the following steps were implemented to conduct the Low Resolution Coring Program:

- Evaluate target locations for low resolution cores using Tierra Solutions, Inc. (TSI) 1995 Remedial Investigation (RI) dataset and other published data. Low resolution core locations were selected to verify sediment concentrations reported in the TSI 1995 RI program.
- Collect low resolution sediment cores (one core per location).
- Split cores horizontally to examine geological sequence, divide core into approximately 6 slices per core based on geology, and process samples.
- Remaining material was disposed in April 2007.

All field work was conducted in accordance with the Lower Passaic River Restoration Project Work Plan (Malcolm Pirnie, Inc., January 2006) and the Lower Passaic River Restoration Project Quality Assurance Project Plan (Malcolm Pirnie, Inc., August 2005) and accompanying addendums.

DETAILS OF THE LOW RESOLUTION CORE PROGRAM

As part of the 2006 United States Environmental Protection Agency (USEPA) RI sampling program, Malcolm Pirnie, Inc. collected low resolution sediment cores from 10 locations in the Lower Passaic River between river mile (RM) 2 and RM7 from January 11, 2006 to January 13, 2006 (Table 1). These locations were selected to verify sediment concentrations reported in the TSI 1995 RI program (Table 2). Low resolution cores were designed to penetrate to the red-brown clay, sand, or to refusal to verify the depth of contamination and to characterize the chemical properties of the red-brown clay or sand underlying the black silt deposits.

Table 1: Low Resolution Cores Collected

Sample Event in Database	Sample Date	Location Identification in Database	Common Core Name	Core Identification in Database
587	January 13, 2006	G0000025	LR-01	558
588	January 13, 2006	G0000026	LR-02	559
585	January 12, 2006	G0000023	LR-03	556
586	January 12, 2006	G0000024	LR-04	557
582	January 11, 2006	G0000020	LR-05	553
584	January 11, 2006	G0000022	LR-06	555
589	January 13, 2006	G0000027	LR-07	560
590	January 13, 2006	G0000029	LR-08	561
583	January 12, 2006	G0000021	LR-09	554
581	January 12, 2006	G0000019	LR-10	552

Table 2: Low Resolution Cores and Corresponding TSI Cores

Core Identification in Database	Common Core Name	River Mile	Corresponding TSI Core Number	Distance between Low Resolution and TSI Cores
558	LR-01	2.85	TSI Core 227	12 feet
559	LR-02	3.08	TSI Core 230	3 feet
554	LR-09	3.13	TSI Core 285	106 feet
556	LR-03	3.53	TSI Core 234	13 feet
557	LR-04	3.76	TSI Core 239	18 feet
553	LR-05	4.22	TSI Core 245	6 feet
552	LR-10	4.37	TSI Core 292	82 feet
555	LR-06	4.91	TSI Core 252	4 feet
560	LR-07	5.36	TSI Core 260	10 feet
561	LR-08	6.73	TSI Core 278	15 feet

A sediment core was processed by laying the core horizontally on a table and splitting the core into two longitudinal halves to examine the geology. The thickness of the fine-grained, black silt was measured and divided into five equal intervals. The bottom sand or red-brown clay layer was sampled as a separate layer. This process yielded a total of six sediment intervals per core, except for LR-08, which was divided into four intervals due to limited sediment mass (Table 3). Sediment material was collected from both halves of the core and homogenized before sample jars were filled.

Table 3: Geologic Details on Low Resolution Cores

Core Identification	Common Core Name	Geologic Details (for more information see attached geologic logs and photographs)
558	LR-01	Slices 1-5 (0-260 cm) black silt Slice 6 (260-312 cm) red sand
559	LR-02	Slices 1-5 (0-228 cm) black silt Slice 6 (228-294 cm) red sand
556	LR-03	Entire core is black silt [Slices 1-6 (0-382 cm)]
557	LR-04	Slices 1-5 (0-290 cm) black silt Slice 6 (290-348 cm) brown silt/clay
553	LR-05	Slices 1-5 (0-353 cm) black silt Slice 6 (353-396 cm) brown sand
555	LR-06	Slices 1-5 (0-220 cm) black silt Slice 6 (220-240 cm) black sand
560	LR-07	Slices 1-5 (0-167 cm) black silt Slice 6 (167-225 cm) red-brown silt
561	LR-08	Slices 1-3 (0-118 cm) black silt Slice 4 (118-125 cm) brown clay
554	LR-09	Slices 1-5 (0-346 cm) black silt Slice 6 (346-399 cm) black sand ^a
552	LR-10	Slices 1-5 (0-330 cm) black silt Slice 6 (330-356 cm) sand

a: For Core ID 554 (common name LR-09), another geological layer (red-brown clay) was observed beneath the black sand (slice 6: 346-399 cm); however, the limited amount of recovered material prevented processing and sampling.

During core processing, sediment samples from every interval in the core were analyzed for cesium-137 by Outreach Laboratory (Broken Arrow, Oklahoma); chlorinated herbicides, total petroleum hydrocarbons (TPH), total organic carbon (TOC), pH, specific gravity, and grain size by Severn Trent Laboratory (South Burlington, Vermont); target analyte list (TAL) metals including titanium and mercury by the contract laboratory program (CLP) company, Sentinel, Inc. (Huntsville, Alabama); polycyclic aromatic hydrocarbon (PAH) compounds, polychlorinated biphenyl (PCB) congeners, polychlorodibenzodioxins/furans (PCDD/F), and pesticides by Axys Analytical Services (British Columbia, Canada); and PCB Aroclors, volatile organic compounds (VOC), and semivolatile organic compounds (SVOC) by the CLP company A4 Scientific, Inc. (Woodlands, Texas).

Two sediment samples from each core (total of 20 samples) were stored frozen (-10°C) in a walk-in freezer at the field facility in accordance with the Lower Passaic River Restoration Project Quality Assurance Project Plan (Malcolm Pirnie, Inc., August 2005) and accompanying addendums. On February 6, 2006, these samples were shipped to Severn Trent Laboratory (Knoxville, Tennessee) for PCB congener and PCDD/F immunoassay screening (Table 4); however, the concentration of PCB congeners and PCDD/F in the sediment samples exceeded the immunoassay method calibration range for the majority of the samples. Consequently, insufficient data were available to develop a correlation between with immunoassay method and the corresponding analytical data reported by Axys Analytical Services. These data are currently unvalidated and not viewable in the project database.

Table 4: Samples shipped for Immunoassay Screening

Core Identification	Common Core Name	Sediment Slices Shipped For Immunoassay Screening
558	LR-01	Slice 1
		Slice 4
559	LR-02	Slice 1
		Slice 3 (plus duplicate)
556	LR-03	Slice 1
		Slice 5
557	LR-04	Slice 1
		Slice 4
553	LR-05	Slice 1
		Slice 3
555	LR-06	Slice 1
		Slice 4
560	LR-07	Slice 1
		Slice 3
561	LR-08	Slice 1
		Slice 2
554	LR-09	Slice 1
		Slice 4
552	LR-10	Slice 1
		Slice 5

For comments and notes on the low resolution core program, please refer to the “Comments” field in the project database. Note that for Core ID 555 (common name LR-06) sample identification and slice depth were not recorded on the labels of the sample jars for slices 4 and 5 due to an oversight during core processing and subsequent sample management. In the database, the analytical results from slices 4 and 5 were placed in sequential depth order based on the order in which the jars were scanned into the barcode reader; however, some uncertainty is present in the assignment of results between slices 4 and 5. The database associates all data for slices 4 and 5 with a depth interval of 132-176 cm, but the data could be from either slice 4 (132-176 cm) or slice 5 (176-220 cm). This issue is noted in the database; users should be aware that these data do **not** represent a sample and field duplicate pair. For Core ID 561 (common name LR-08), because of limited sediment mass, only geotechnical parameters were collected from the bottom slice (118-125 cm; slice 4). Duplicate samples for quality control were collected from Core ID 559 (common name LR-02) slice 3, Core ID 556 (common name LR-03) slice 4, and Core ID 552 (common name LR-10) slice 3.

Table 5 (attached) summarizes the total number of slices per low resolution core, analyses conducted on the samples, and notes on available data in the database. Only validated data are “viewable” in the database. Table 5 also notes samples that are currently unvalidated and inaccessible in the public-release database, including the immunoassay screening data.

ATTACHED TABLES

Table 5: Available Low Resolution Core Data on Database

Survey_Id	EventID	Core_Id	CoreNumber	Number of Slices Per Core	Analyses	Comments on Available Data
1091	587	558	LR-01	6	Cs-137, Herbicides, TPH, TOC, geophysical parameters, metals, PAH, PCB congeners and Aroclors, PCDD/F, pesticides, VOC, and SVOC	Cs-137 for LR-01, Slice 5 currently not available in database.
1091	588	559	LR-02	6	Cs-137, Herbicides, TPH, TOC, geophysical parameters, metals, PAH, PCB congeners and Aroclors, PCDD/F, pesticides, VOC, and SVOC	Data available in database.
1091	585	556	LR-03	6	Cs-137, Herbicides, TPH, TOC, geophysical parameters, metals, PAH, PCB congeners and Aroclors, PCDD/F, pesticides, VOC, and SVOC	Data available in database.
1091	586	557	LR-04	6	Cs-137, Herbicides, TPH, TOC, geophysical parameters, metals, PAH, PCB congeners and Aroclors, PCDD/F, pesticides, VOC, and SVOC	Data available in database.
1091	582	553	LR-05	6	Cs-137, Herbicides, TPH, TOC, geophysical parameters, metals, PAH, PCB congeners and Aroclors, PCDD/F, pesticides, VOC, and SVOC	Cs-137 for LR-05, Slice 6 currently not available in database. Percent moisture unvalidated (not viewable in database).
1091	584	555	LR-06	6	Cs-137, Herbicides, TPH, TOC, geophysical parameters, metals, PAH, PCB congeners and Aroclors, PCDD/F, pesticides, VOC, and SVOC	Core ID 555 (common name LR-06), depth information for slice 4 (132-176cm) and slice 5 (176-220cm) were not provided on the sample jars. Consequently, the database reports all the analytical data for slice 4 and slice 5 as 132-176 cm (slice 4), and a comment was added to note the mistake. These data are not duplicates.
1091	589	560	LR-07	6	Cs-137, Herbicides, TPH, TOC, geophysical parameters, metals, PAH, PCB congeners and Aroclors, PCDD/F, pesticides, VOC, and SVOC	Data available in database.
1091	590	561	LR-08	4	Cs-137, Herbicides, TPH, TOC, geophysical parameters, metals, PAH, PCB congeners and Aroclors, PCDD/F, pesticides, VOC, and SVOC	Cs-137 for LR-08, Slice 2 and Slice 3 currently not available in database. Because of limited sediment mass, only geotechnical parameters were collected from the bottom slice (118-125 cm; slice 4).
1091	583	554	LR-09	6	Cs-137, Herbicides, TPH, TOC, geophysical parameters, metals, PAH, PCB congeners and Aroclors, PCDD/F, pesticides, VOC, and SVOC	Cs-137 for LR-09, Slice 4 currently not available in database. Percent moisture unvalidated (not viewable in database).
1091	581	552	LR-10	6	Cs-137, Herbicides, TPH, TOC, geophysical parameters, metals, PAH, PCB congeners and Aroclors, PCDD/F, pesticides, VOC, and SVOC	Cs-137 for LR-010, Slice 5 currently not available in database. Percent moisture for Slice 4, Slice 5, and Slice 6 unvalidated (not viewable in database).

(1) Duplicate samples were collected from Core ID 559 (common name LR-02) slice 3, Core ID 556 (common name LR-03) slice 4, and Core ID 552 (common name LR-10) slice 3.

(2) Containers for the low resolution program QC'd in April 2007.

(3) Data from the immunoassay screening are currently not validated and not viewable in the database (refer to narrative for further discussion).

PROJECT: Lower Passaic River RI
 NUMBER: 4553001
 CORING FIRM: Aqua Survey Inc.
 CORING OPERATOR:
 CORING TYPE: Vibra Core

DATE: 1/13/06
 TIME: 1400
 LOGGED BY: J Peake
 RIVER MILE: 3-2
 DATUM:

Sheet 1 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
Set 1	0 - 69	ML		Brown SILT, Very Soft Rapid Dilatancy, Non-Plastic, Wet. (Some leave matrix in section 1 near top of section)	PID = 1.2 ppm
sec 2	69 - 138	ML		Brown/Dark Brown (Stratified) SILT, rapid dilatancy, very soft, Non-Plastic, wet. (Stratified layers are about 6cm-10cm) Slight odor.	PID = 2.5 ppm
sec 3	138 - 207	ML-CL		Light Brown/Dark Brown SILT, some (20-35%) clay. Very Loose to Loose, Rapid Dilatancy in Silt, slow dilatancy in clay. Moist-Wet. (Stratified layers are about 6cm) Clay is very soft & light Brown Silt is Dark Brown.	PID = 2.8 ppm
sec 4	207 - 276			Light Brown/Dark Brown SILT, some (20-35%) clay. Very Loose to Loose, Rapid Dilatancy in Silt, slow dilatancy in clay. Moist to wet. (Stratified layers are about 6cm) Clay is very soft & light Brown; Silt is Dark Brown.	PID = 1.4 ppm

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PIRNIE

LOG OF CORE
 L/R-09

CID: 0000045

EASTING: 592921
 NORTHING: 695065
 ELEVATION:
 REFUSAL DEPTH (CM):
 RECOVERY (CM): 14.4
 CORE BARREL ADVANCED (CM): 20

R2-0011708

PROJECT: Lower Passaic River RI
 NUMBER: 4553001
 CORING FIRM: Aqua Survey Inc.
 CORING OPERATOR:
 CORING TYPE: Vibra Core

DATE:
 TIME:
 LOGGED BY:
 RIVER MILE:
 DATUM:

Sheet 2 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
276					
276					
276	276	ML		Dark Brown SILT, medium STIFF, slow-None Dilatancy, slight plasticity, moist.	PJD 3.6 PPM
346	300				
346	346	SP-SM		Dark Brown Black SAND and (35-50%)Silt, medium Density (Silt; loose), moist. (Silt & Sand is stratified in non horizontal patterns) Poor poorly graded	PJD 4.0 PPM
399	399	SL			
399	400	SW		Reddish-Brown SAND, some (35%) gravel, well graded, moist. (Not for analysis)	
419	450				

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LOG OF CORE
L/R - 09
 CID:

EASTING:
 NORTHING:
 ELEVATION:
 REFUSAL DEPTH (cm):
 RECOVERY (CM):
 CORE BARREL ADVANCED (CM):

R2-0011709

PROJECT: Lower Passaic River RI
 NUMBER: 4553001
 CORING FIRM: Aqua Survey Inc.
 CORING OPERATOR:
 CORING TYPE: Vibra Core

DATE: 1/17/06
 TIME:
 LOGGED BY: J. Peake
 RIVER MILE: 4.9
 DATUM:

Sheet 1 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
0 - 44	cm — 44	ML		Dark Brown SILT trace (<5%) Very fine Silt, very soft, non-plastic. Rapid dilatancy, wet.	PID 0.0 ppm * Lost top 5 cm during extraction.
44 to 88	50 — 88	ML		Dark Brown/Brown SILT, very soft, non-plastic, rapid dilatancy, wet. (Stratified layers of Brown & Dark Brown)	PID < 1.0 ppm
88 to 132	100 — 132	ML		Dark Brown/Brown SILT, soft - medium stiff, rapid dilatancy, moist to wet. (Some molding of Brown sediment within the dark Brown sediment)	PID ≈ 12.0
132 to 176	150 — 176	ML		Dark Brown/Black SILT soft to medium stiff, non-plastic, rapid dilatancy, moist to wet. (Some molding of Brown in Black)	PID = 16.0 ppm
176 to 221	— 200	ML		Dark Brown/Black SILT, med-stiff, non to slightly plastic, slow-mono dilatancy, moist. (Slight molding less than the layer above). (Piece of wood (stick) in SC.)	PID = 300 ppm
221 to 241	— SP- SM			Dark Brown to Black SAND and SILT trace Clay. Med-low Dense, med-stiff, slow dilatancy, moist.	PID = 250 ppm

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LOG OF CORE

L/R - 06

CID: 0000046

EASTING: 585444
 NORTHING: 69394/
 ELEVATION:
 REFUSAL DEPTH (cm):
 RECOVERY (cm): 112"
 CORE BARREL ADVANCED (cm): 10'

11
12
13
14

PROJECT: Lower Passaic River RI
NUMBER: 4553001
CORING FIRM: Aqua Survey Inc.
CORING OPERATOR:
CORING TYPE: Vibra Core

DATE: 11/12/03
TIME:
LOGGED BY Kevin Burns
RIVER MILE: 4.4
DATUM:

Sheet 1 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
				0-21 cm - organic debris, twigs, roots	
					181 103
50	ML			21-72 cm Brown SILT, V-SOFT, non-plastic, road dilatancy, nondecreas	151 103 259 118 172
100	ML			72-162 cm Brown/Black SILT, V-SOFT, non-plastic, low-low plasticity, road dilatancy, nondecreas	1201 00 07
150	ML			162-207 Black SILT, SOFT-V-SOFT, medium plasticity, rapid dilatancy, nondecreas, damp	140 103 145 112 163
200	M			207-245 dk Brown SILT, SOFT, medium plasticity, road dilatancy, London Clay sized oysters (4-6 cm) damp	Lignite

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LOG OF CORE
4X10
CID:

EASTING:
NORTHING:
ELEVATION:
REFUSAL DEPTH (cm): 330
RECOVERY (CM): 305
CORE BARREL ADVANCED (CM): 335

R2-0011711

PROJECT: Lower Passaic River RI
NUMBER: 4553001
CORING FIRM: Aqua Survey Inc.
CORING OPERATOR:
CORING TYPE: Vibra Core

DATE:
TIME:
LOGGED BY:
RIVER MILE:
DATUM:

Sheet 2 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
		ML		240-319 SAA	
300		SP		<u>319-363</u> SAND trace (<u><96</u>) Gravel p-c, poorly sorted, loose, Leased clay, damp, Petroleum Oils	<u>245</u> <u>319</u> <u>342</u> <u>357</u> <u>295</u> <u>1</u> <u>245</u> <u>363</u> <u>319</u>
350				REFUSE C 363 cm	
400					
450					

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PIRNIE

LOG OF CORE
L/R 10
CID:

EASTING:
NORTHING:
ELEVATION:
REFUSAL DEPTH (cm):
RECOVERY (CM):
CORE BARREL ADVANCED (CM):

R2-0011712

PROJECT: Lower Passaic River RI
 NUMBER: 4553001
 CORING FIRM: Aqua Survey Inc.
 CORING OPERATOR:
 CORING TYPE: Vibra Core

DATE: 1/13/06
 TIME:
 LOGGED BY: J. Peake
 RIVER MILE: 4.2
 DATUM:

Sheet 1 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
sec 1	0 to 70	ML		Dr Brown - Black Silt trace sand lenses of sand (1/4cm) gravel (<10), non plastic, very soft in 2 or 3 sections. few rocks and gravel range in 5mm - 10cm diameter.	
sec 2	70 to 140	ML		Dark Brown Black - SILT non plastic, SOFT, Rapid dilatancy. Moist-Wet (areas of Product Sheen)	Top has some wood hash (about top 1 cm) PID 8.0
sec 3	140 to 210	ML	Brown Dark Brown	Brown/Black SILT, non plastic. Soft-med stiff, Slow dilatancy. moist. (Stratified ~6mm alterations in color between brown & Black) (areas of Product Sheen)	Between 110 & 130 of Total Core Color is Brown to Dark Brown *PID: 10.6
sec 4	210 to 280	ML		Dark Brown SILT little sand. Medium Stiff, None Dilatancy med plastic, moist.	*PID: 17.1
					Volume Area Between 260-270cm is a Sand lens. Dark Brown SAND little Silt. moist Silt spinules after lens. Main transition not yet
MALCOLM PIRNIE				LOG OF CORE <u>L/R-05</u>	EASTING: 588391 NORTHING: 692539 ELEVATION: REFUSAL DEPTH (cm): RECOVERY (cm): 15' CORE BARREL ADVANCED (cm): 15'
				CID:	

PROJECT: Lower Passaic River RI
 NUMBER: 4553001
 CORING FIRM: Aqua Survey Inc.
 CORING OPERATOR:
 CORING TYPE: Vibra Core

DATE:
 TIME:
 LOGGED BY:
 RIVER MILE:
 DATUM:

Sheet 2 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
				From last sheet	
Sec 5	280 +0	ML		Dark Brown SILT trace Sand (<5%) Med-Stiff, Plastic, none Dilatancy, Moist-Dry/wet. (Some silt)	PID = 24.0 PPM
280 +0	300				
353	350	SP-SM		Dark Brown - SAND and Silt, Med-Stiff → Stiff Sand (close to Med-Dense), Moist (Stratified Colors of Bran Black)	PID = 20.0 PPM Sand & Silt are intermixed (non vertical or horizontal) Sand Sections are about 6-10 cm
353 +0	396			End of Core	Picture
396	400				
	450				

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PIRNIE

LOG OF CORE
L/R - 05
 CID:

EASTING:
 NORTHING:
 ELEVATION:
 REFUSAL DEPTH (cm):
 RECOVERY (CM):
 CORE BARREL ADVANCED (CM):

R2-0011714

PROJECT: Lower Passaic River RI
 NUMBER: 4553001
 CORING FIRM: Aqua Survey Inc.
 CORING OPERATOR:
 CORING TYPE: Vibra Core

DATE: 1/17/06
 TIME:
 LOGGED BY: J. Pearce
 RIVER MILE: 3.6
 DATUM:

Sheet 1 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
(1) 0 to 64	ML			Dark Brown SILT some (1-20g) Organic Debris (top), very soft, non-plastic, rapid dilatancy, wet [0-20 cm]	
(2) 64 to 128	ML			[20-64cm] Dark Brown SILT, Very Soft, Non-plastic, Rapid dilatancy, wet.	
(3) 128 to 192	ML			Dark Brown SILT, soft, non-plastic Rapid Dilatancy, moist to wet.	
(4) 192 to 256	GW ML GW ML			Dark Brown SILT, soft-Medium Stiff, slow dilatancy, moist. (Some mod mixing of lighter and darker Browns) Gravel Layer (Black & white) Gravel layers (Black & wet)	gravel scree) at 166 cm and 183 cm Both layers were about 2 cm thick.
256	CL			Dark Brown SILT, soft to Med-Stiff, Non- few plastic slow dilatancy. moist (Note) 3cm light Brown Clay Seam Light Brown Clay - soft, med-non plastic, moist. ← Clay 50cm 235-238 cm	

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LOG OF CORE
L/R - 03

CID: 0000748

EASTING: 591251
 NORTHING: 694150
 ELEVATION:
 REFUSAL DEPTH (cm):
 RECOVERY (%): 137"
 CORE BARREL ADVANCED (cm): 16

R2-0011715

PROJECT: Lower Passaic River RI
NUMBER: 4553001
CORING FIRM: Aqua Survey Inc.
CORING OPERATOR:
CORING TYPE: Vibra Core

DATE:
TIME:
LOGGED BY:
RIVER MILE:
DATUM:

Sheet 2 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
5	256	-	-	Dark Brown Black SILT Med stiff - stiff Low Plastic None Dilatancy, Moist - Dry	
	320				
	350				
6	350	-	-	Dark Brown SILT Medium - Stiff to Stiff Low - No plasticity, None dilatancy, Moist - Dry	
	382				
	400			End of Core	
	450				

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PIRNIE

LOG OF CORE

ER-05
CID:

EASTING:
NORTHING:
ELEVATION:
REFUSAL DEPTH (cm):
RECOVERY (CM):
CORE BARREL ADVANCED (CM):

R2-0011716

PROJECT: Lower Passaic River RI
 NUMBER: 4553001
 CORING FIRM: Aqua Survey Inc.
 CORING OPERATOR:
 CORING TYPE: Vibra Core

DATE: 1/18/06
 TIME:
 LOGGED BY: J. Peake
 RIVER MILE: 3.8
 DATUM:

Sheet 1 of 4

Depth Interval CM	Depth (CM)	USCS	Graphic	Description of Material	Remarks
(1) 0 to 58	ML			[0 to 5cm] Brown ORGANIC DEBRIS (Leaves) wet. Brown SILT little Organic Debris, trace Sand (Fine), Very Soft, non-plastic, Rapid dilatancy - wet. (Top hand leaves debris)	
58 to 116	ML			Dark Brown SILT some Sand (Fine): Soft-med stiff, None dilatancy, moist.	
116 to 174	SP ML		Sand Layer 90cm-110cm		Sand Layer @ 90-110cm
174 to 232	OL ML			Brown/Dark Brown ORGANIC DEBRIS (Sticks & leaves) wet. Dark Brown Black SILT Some Organic Debris, soft-med stiff, slow dilatancy, wet.	Plastic Bottle In section Sticks & Leaves

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LOG OF CORE
L/P - 04
CID:

EASTING: 590521
 NORTHING: 693178
 ELEVATION:
 REFUSAL DEPTH (CM):
 RECOVERY (CM): 15.4
 CORE BARREL ADVANCED (CM): 20

R2-0011717

PROJECT: Lower Passaic River RI
 NUMBER: 4553001
 CORING FIRM: Aqua Survey Inc.
 CORING OPERATOR:
 CORING TYPE: Vibra Core

DATE:
 TIME:
 LOGGED BY:
 RIVER MILE:
 DATUM:

Sheet 2 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
(5)	232 to 290			Dark Brown/Brown SILT, med-stiff, slightly Plastic, slow to no dilatancy, moist. (Some Stones ~ 2cm) (Stratified ~ 2cm) of Dark Brown & Brown	Some wood chunks and small rock fragments.
(6)	290 to 348	300		[290-320] Brown/Light Brown SILT some Clay - SOFT, slow dilatancy, slightly Plastic moist. (Laminated clay stiff) [320-348] Brown/Dark Brown SILT some (2-20%) Gravel, coarse, soft-med/stiff, none-slow dilatancy, moist	Laminated structure of Silt Dark Brown & Clay light Brown. Large Gravel chunks & some Wood chunks
	- 350			End of core	
	400			Core Catcher: last 20 cm: Brown/Dark Brown SILT Med Stiff - Stiff, No dilatancy, non-light Plasticity - moist	

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LOG OF CORE
L/R - 04
 CID:

EASTING:
 NORTHING:
 ELEVATION:
 REFUSAL DEPTH (cm):
 RECOVERY (CM):
 CORE BARREL ADVANCED (CM):

R2-0011718

PROJECT: Lower Passaic River RI
NUMBER: 4553001
CORING FIRM: Aqua Survey Inc.
CORING OPERATOR:
CORING TYPE: Vibra Core

DATE: 1/18/06
TIME:
LOGGED BY: J Peckel
RIVER MILE: 2.9
DATUM:

Sheet 1 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
①	0 to 52	ML		Black SILT some (1-20%) Gravel, (Coarse), Very soft, Non-plastic, Rapid dilatancy, Wet. (Pockets of Gravel in isolated areas)	
②	52 to 104			Black SILT, Very soft, Non plastic, Rapid Dilatancy, Wet. (Off white color)	
③	104 to 156			Black SILT, very soft, Non-plastic, Rapid Dilatancy, Wet. ODOR	
④	156 to 208			Black SILT, Med STIFF, non to slightly Plastic, Slow dilatancy, moist.	
⑤	208 to 260			Black SILT, STIFF, Non-Plastic, None Dilatancy, moist.	

MALCOLM
PIRNIE

LOG OF CORE

LR-01

CID: 0000050

EASTING: 584950
NORTHING: 695644
ELEVATION:
REFUSAL DEPTH (cm): 111
RECOVERY (cm): 111 / 311
CORE BARREL ADVANCED (cm): 111 / 605

R2-0011719

PROJECT: Lower Passaic River RI
NUMBER: 4553001
CORING FIRM: Aqua Survey Inc.
CORING OPERATOR:
CORING TYPE: Vibra Core

DATE:
TIME:
LOGGED BY:
RIVER MILE:
DATUM:

Sheet 2 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
260	260			Red SAND, fine, Med-dense, moist	Sharp transition from Black Silt to Red Sand
308	308				
350	350				
400	400				
450	450				

MALCOLM
PIRNIE

LOG OF CORE
LR - 01
CID:

EASTING:
NORTHING:
ELEVATION:
REFUSAL DEPTH (cm):
RECOVERY (CM):
CORE BARREL ADVANCED (CM):

R2-0011720

PROJECT: Lower Passaic River RI
 NUMBER: 4553001
 CORING FIRM: Aqua Survey Inc.
 CORING OPERATOR:
 CORING TYPE: Vibra Core

DATE: 1/19/06
 TIME:
 LOGGED BY: J. Peake
 RIVER MILE: 3.1
 DATUM:

Sheet 1 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
① 0 - 40	ML	○		Brown / Black SILT little Fines, little Sandy, Very-Soft, non-plastic, rapid Dilatancy, Wet. (the brown and black is Intermixed in modeling patterns)	Organic Debris at 1st 1cm of core section
② 49 - 98	ML	-		Brown, Dark Brown/Black SILT, Very-Soft, non-plastic, rapid-Dilatancy, wet.	
③ 98 - 147	-	-		Dark Brown/Black SILT Soft, non-Plastic, rapid Dilatancy, moist.	
④ 147 - 196	-	-		Dark Brown/Brown SILT, medium stiff, slow-No Dilatancy, slightly Plastic, moist. (Stratified layers (~5cm) of alternating Brown & Dark Brown layers)	
⑤ 196 - 226	-	-		Dark Brown → Reddish Brown SILT and SAND & Gravel. Moist. Alternating (stratified) layers (~5cm) consisting of [5 cm SILT then 5 cm	Sand then 5cm Silt then 13cm Sand & Grav.
226 - 240	-	-			

MALCOLM
PIRNIE

LOG OF CORE

4/R - 02

CID: 0000051

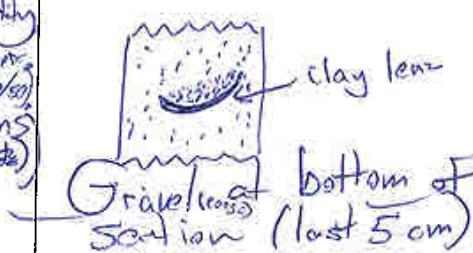
EASTING: 593148
 NORTHING: 695458
 ELEVATION:
 REFUSAL DEPTH (cm):
 RECOVERY (CM): 13' 9"
 CORE BARREL ADVANCED (CM): 19'

R2-0011721

PROJECT: Lower Passaic River RI
NUMBER: 4553001
CORING FIRM: Aqua Survey Inc.
CORING OPERATOR:
CORING TYPE: Vibra Core

DATE:
TIME:
LOGGED BY:
RIVER MILE:
DATUM:

Sheet 2 of 4

Depth Interval (CM)	Depth (CM)	USCS	Graphic	Description of Material	Remarks
290				Red SAND, Medium Density med coarse to fine alternating layers Mixture of quartz & feldspar (red/orange) Moist. (2,1 mm light Clay Seams) (lenses)	
300					Gravelly bottom of section (last 5 cm)
350					
400					
450					

MALCOLM
PIRNIE

LOG OF CORE
L/R - 02
CID:

EASTING:
NORTHING:
ELEVATION:
REFUSAL DEPTH (cm):
RECOVERY (CM):
CORE BARREL ADVANCED (CM):

R2-0011722

PROJECT: Lower Passaic River RI
 NUMBER: 4553001
 CORING FIRM: Aqua Survey Inc.
 CORING OPERATOR:
 CORING TYPE: Vibra Core

DATE: 1/19/06
 TIME:
 LOGGED BY: J. Peake
 RIVER MILE: 5.4
 DATUM:

Sheet 1 of 4

Depth Interval	Depth (CM)	USCS	Graphic	Description of Material	Remarks
D	0 to 35	ML	-	Black SILT little (~15%) Sand, Very Soft, Non Plastic, Rapid Dilatancy, Wet.	
②	35 to 70	ML	-	Black/Dark Brown SILT trace Sand, Very Soft, Non Plastic, Rapid Dilatancy, Wet.	
③	70 to 105	ML	-	Black/Brown SILT Debris (leaves & stick), some Organic dilatancy. moist to wet, soft, Rapid [90-105cm] Brown/Black, SAND and SILT, stiff, loose, wet, (poorly graded)	Last 15 cm of section 3 was sand and silt
④	105 to 140	ML	-	Black SILT, soft, no plastic, rapid dilatancy, wet.	
⑤	140 to 168	SW	-	Grey/Black SAND & the silt, loamy, well graded, wet	
⑥	168 to 226	ML	-	Black SILT, soft, wet.	
⑦	226 to 252	ML	-	Grey Black SAND, loose, well graded, Quartz & Feldspar grains, wet.	
				Red SILT, very STIFF, None Dilatancy, No plasticity (moist - stiff).	Red, clean SILT layer No organic content.
				Brown SILT, very STIFF, None Dilatancy, No plasticity (moist).	Pebbles found on very bottom

MALCOLM
PIRNIE

LOG OF CORE

L/R - 07

CID: 0000052

EASTING: 584950
 NORTHING: 696206
 ELEVATION:
 REFUSAL DEPTH (cm):
 RECOVERY (CM): 10' 5"
 CORE BARREL ADVANCED (CM): 10.5 ft

R2-0011723

← Section Divider

PROJECT: Lower Passaic River RI
 NUMBER: 4553001
 CORING FIRM: Aqua Survey Inc.
 CORING OPERATOR:
 CORING TYPE: Vibra Core

DATE: 1/20/06
 TIME:
 LOGGED BY: J. Peckle
 RIVER MILE: 6.7
 DATUM:

Sheet 1 of 4

Depth Interval (CM)	Depth (CM)	USCS	Graphic	Description of Material	Remarks
0			ML	[0-5cm] Dark Brown SILT, very soft wet, [5-12cm] Dark Brown SAND little Silt, loamy, Wat. Organ.	Organic Debris on top 1 cm
1			SP	Dark Brown SILT, little Organic Debris, trace Sand, Very Soft, Rapid Dilatancy, Wet.	Free Product Sheen Visible
2	50		ML	Dark Brown, SILT, Little Organic Debris, trace Sand, trace Gravel, Very Soft, Rapid Dilatancy, Non-Plastic, Wet.	Free Product Sheen
3	100		ML	Dark Brown SILT & Gravel Little Sand, Very loose, Very Soft, Rapid Dilatancy, Wet	Transition Zone
4			CL	Brown CLAY, Very Plastic, Mott.	
5	150		GW	Reddish Brown GRAVEL - well graded, wet.	
6	200				
7	200				

MALCOLM
PIRNIE

LOG OF CORE

L/E-08
CID: 0000253

EASTING: 586317
 NORTHING: 703070
 ELEVATION:
 REFUSAL DEPTH (cm):
 RECOVERY (CM): 4' 11"
 CORE BARREL ADVANCED (CM): 8.25'

R2-0011724